

**What is claimed is:**

1. A lubricating oil balance equipment installed in a lubricating oil channel of a shaft, characterized in that it includes a ring main body and an extending portion, the extending portion extends outward from the main body along axis direction, there is an inlet in the main body and the extending portion is ended in an outlet, so that lubricating oil from the lubricating oil entrance channel only can enter from the inlet of the main body and flow out from the extending portion through the main body.
2. The lubricating oil balance equipment installed in a lubricating oil channel of a shaft as claimed in claim 1, wherein the lubricating oil balance equipment is a single component (3).
3. The lubricating oil balance equipment installed in a lubricating oil channel of a shaft as claimed in claim 1, wherein said lubricating oil balance equipment is a guiding cavity processed in an end of the shaft.
4. The lubricating oil balance equipment installed in a lubricating oil channel of a shaft as claimed in claim 1, 2 or 3, wherein said main body is ring-shaped.
5. The lubricating oil balance equipment installed in a lubricating oil channel of a shaft as claimed in claim 1, 2 or 3, wherein sectional shape of said main body is circle.
6. The lubricating oil balance equipment installed in a lubricating oil channel of a shaft as claimed in claim 1, 2 or 3, wherein sectional

shape of said main body is of squareness.

7. The lubricating oil balance equipment installed in a lubricating oil channel of a shaft as claimed in claim 1, 2 or 3, wherein said extending portion extends outward along axis direction from the position adjacent to the circle.

8. A shaft having the lubricating oil balance equipment of the claim 1, wherein the shaft comprises an entrance channel of lubricating oil, a middle channel of lubricating oil and a discharge channel of lubricating oil; lubricating oil can be supplied to components to be lubricated by entering form the entrance channel of lubricating oil and passing through the middle channel of lubricating oil and the discharge channel of lubricating oil; the inlet of said lubricating oil balance equipment is connected to the entrance channel of lubricating oil, the outlet of said lubricating oil balance equipment is connected to the middle channel of lubricating oil and the entrance channel of lubricating oil and the middle channel of lubricating oil are sealed off each other, so that the lubricating oil can reach the middle channel of lubricating oil only through the lubricating oil balance equipment.

9. The shaft as claimed in claim 8, wherein the height of the discharge channel of lubricating oil is not higher than that of the middle channel of lubricating oil while the middle channel of lubricating oil is in the highest position.

10. The shaft as claimed in claim 8, wherein the external diameter of the extending portion of said lubricating oil balance equipment is same as the internal diameter of the middle channel of lubricating

oil so as to airproof the middle channel of lubricating oil.

11. A mill having said lubricating oil balance equipment of the claim 1.

12. A mill having said shaft of the claim 8.